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CS 280
Programming Language Concepts

Command Line Arguments and Files

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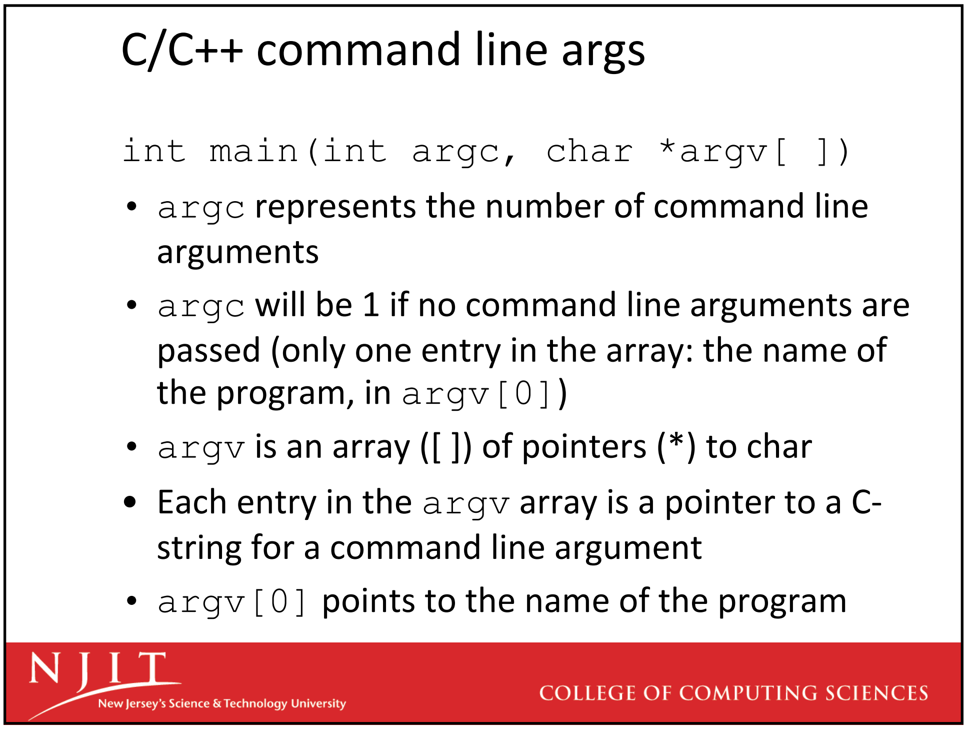
Command Line Arguments

- When a program executes, the runtime environment may pass parameters to it
- These parameters are the words entered on the command line when the program is run
- They appear to the program as an array of strings passed to main

Java vs C/C++

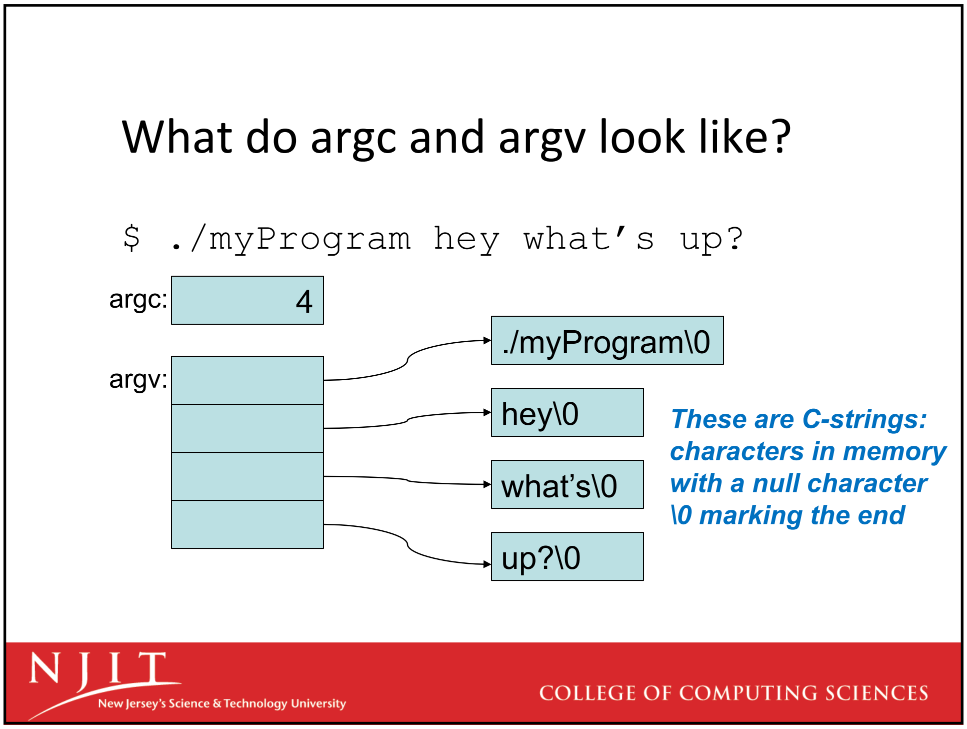
- In Java, the argument to main is an array of String, one String per argument.
  - An array in Java is an object that, among other things, knows its size; therefore, the length of the array is how many arguments were passed
- In C/C++ there are two arguments, an argument count, and an array of strings, one per argument
  - C/C++ arrays are not objects; therefore in addition to needing to know about the array of strings, you need to know its size
- One other difference: in Java, the first element ([0]) of the array is the first argument to the program. In C and C++, the first element of the array is the name of the program



C/C++ command line args

```
int main(int argc, char *argv[ ])
```

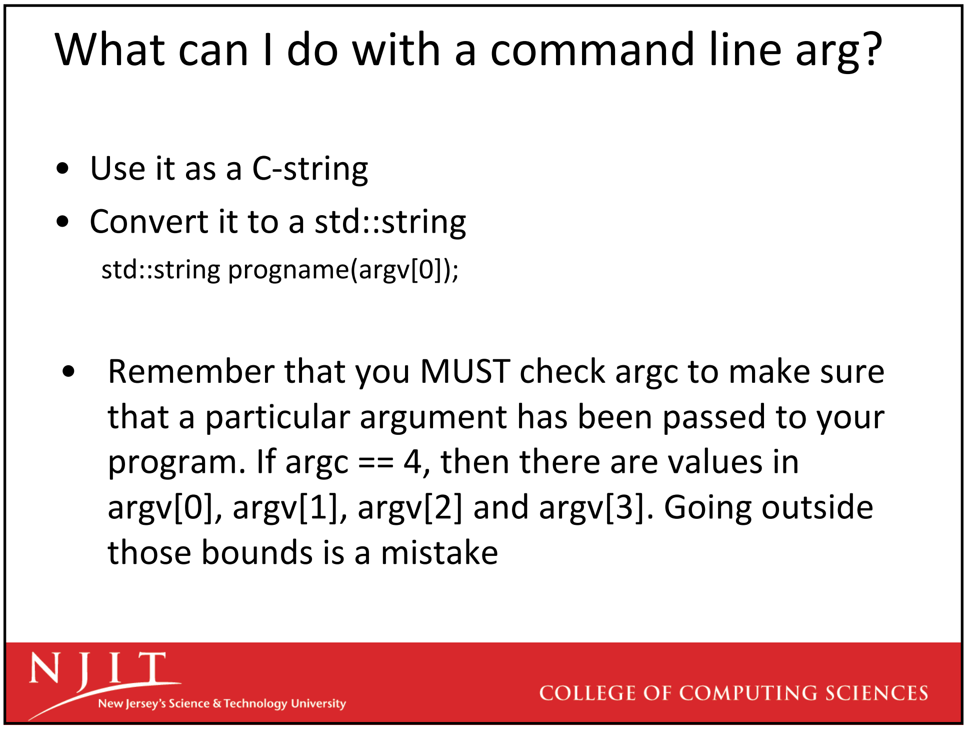
- `argc` represents the number of command line arguments
- `argc` will be 1 if no command line arguments are passed (only one entry in the array: the name of the program, in `argv[0]`)
- `argv` is an array ([ ]) of pointers (*) to char
- Each entry in the `argv` array is a pointer to a C-string for a command line argument
- `argv[0]` points to the name of the program



What do argc and argv look like?

```
$ ./myProgram hey what’s up?
```

These are C-strings: characters in memory with a null character \0 marking the end



What can I do with a command line arg?

- Use it as a C-string
- Convert it to a std::string

```
std::string progname(argv[0]);
```

- Remember that you MUST check argc to make sure that a particular argument has been passed to your program. If argc == 4, then there are values in argv[0], argv[1], argv[2] and argv[3]. Going outside those bounds is a mistake

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